Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Why is the demand for resources called a “derived” demand? On what two factors does the strength of the demand for resources depend? How are these two factors related?

2. Why is the marginal revenue product schedule a demand schedule for the individual firm in a purely competitive resource market and selling output in a purely competitive product market?

3. In the table below are the marginal product data for resource Y. Assume that the quantities of other resources employed by the firm remain constant. Compute the total product (output) of the firm for each of the seven quantities of resource Y employed and enter these figures in the table. Assume that the firm sells its output in an imperfectly competitive market and that the prices at which it can sell its product are those given in the table. Compute and enter in the table total revenue and the marginal revenue product for each of the seven units of resource Y.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Quantity of resource Y employed** | **Marginal product of Y** | **Total product** | **Product price** | **Total revenue** | **Marginal revenue product of Y** |
| 0 | – | 0 |  | – | – |
| 1 | 50 | \_\_\_\_\_ | $2.00 | $\_\_\_\_\_ | $\_\_\_\_\_ |
| 2 | 42 | \_\_\_\_\_ | 1.90 | \_\_\_\_\_ | \_\_\_\_\_ |
| 3 | 34 | \_\_\_\_\_ | 1.80 | \_\_\_\_\_ | \_\_\_\_\_ |
| 4 | 24 | \_\_\_\_\_ | 1.70 | \_\_\_\_\_ | \_\_\_\_\_ |
| 5 | 16 | \_\_\_\_\_ | 1.60 | \_\_\_\_\_ | \_\_\_\_\_ |
| 6 | 8 | \_\_\_\_\_ | 1.50 | \_\_\_\_\_ | \_\_\_\_\_ |
| 7 | 2 | \_\_\_\_\_ | 1.40 | \_\_\_\_\_ | \_\_\_\_\_ |

How many units of resource Y would the firm employ at each of the following resource prices?

|  |  |
| --- | --- |
| **Resource price** | **Quantity employed** |
| $90 | \_\_\_\_\_ |
| 80 | \_\_\_\_\_ |
| 70 | \_\_\_\_\_ |
| 60 | \_\_\_\_\_ |
| 50 | \_\_\_\_\_ |
| 40 | \_\_\_\_\_ |
| 30 | \_\_\_\_\_ |
| 20 | \_\_\_\_\_ |
| 10 | \_\_\_\_\_ |
| 1 | \_\_\_\_\_ |

4. Compare and explain the significance of the substitution and output effects as they apply to resource pricing. What relationship, if any, do they bear to the income and substitution effects discussed in connection with product demand?

5. A firm combines two resources, X and Y, to produce an output level Q in a purely competitive market. The cost of a unit of X is $15 and the cost of a unit of Y is $8. The marginal product of X is 45 units and the marginal product of Y is currently 36 units at output level Q. What would you recommend that the firm do given this resource combination?